

Contributors to This Issue

Frederick T. Andrews, Jr., B.S. (Electrical Engineering), 1948, The Pennsylvania State University; Bell Laboratories, 1948—. After seven years of research work on switching circuits and systems, Mr. Andrews supervised part of the early development effort on T carrier. In 1958, he became head of a department engaged in transmission systems engineering studies and maintenance. He has been a director since 1962 with responsibilities first in transmission systems engineering and later military communications systems engineering. Since 1968, he has been Director of the Loop Transmission Systems Laboratory with both systems engineering and development responsibility for electronic systems applied to subscriber loops. Fellow IEEE and member of Communications Society Board of Governors. Chairman, CCITT Study Group XII.

Gregg W. Aughenbaugh, B.S. (Electrical Engineering), 1967, Pennsylvania State University; M.S. (Electrical Engineering), 1968, Princeton University; Bell Laboratories, 1967—. Mr. Aughenbaugh has studied differential PCM transmission methods, performed system cost and growth studies, and developed analog transmission requirements for *PICTUREPHONE*® video telephone systems. Currently he is engaged in operating-telephone-company implementation and computerization of the Facility Analysis Plan, which he developed along with others in the Loop Transmission Engineering Center at Bell Laboratories. Member, IEEE, Eta Kappa Nu, Phi Kappa Phi, Tau Beta Pi.

Napoleon G. Avaneas, B.S., 1954, Greek Naval Academy; M.S.E.E., 1968, and Ph.D. E.E., 1972, University of Texas; Greek Navy, 1954–1966; University of Texas, 1966–1970 and 1971–1972; Hewlett-Packard Company, 1970–1971; Massachusetts Institute of Technology—Lincoln Laboratory, 1972–1973; Bell Laboratories, 1973–1978; General Electric, 1978—. Mr. Avaneas' work at Bell Laboratories involved the design and programming of the microcomputer system for the Loop Switching System.

W. N. Bell, B.S., 1967, Pratt Institute; M.S., 1969 (Mathematics) Stevens Institute of Technology; Bell Laboratories, 1967–1973; New Jersey Bell, 1973–1975; Bell Laboratories, 1975—. Mr. Bell has worked on problems of crosstalk and inductive interference in telephone cables. He is presently a member of the Loop Topology and Methods Department and is concerned with loop plant utilization and construction budget analysis.

Steven Blum, B.S.E.E., 1963, Swarthmore College; Ph.D. (E.E./O.R.), 1967, University of Pennsylvania; TRW Systems Group, 1967-1971; Space Applications Corporation, 1971-1972; Bell Laboratories, 1972—. Mr. Blum has worked in the areas of capital budgeting and outside plant construction force management and resource scheduling. His present interest is developing inventory management techniques for outside plant cable and associated material. Member, IEEE, Sigma Xi, Sigma Tau.

James M. Brown, B.S.E.E. 1957, M.S.E.E., 1958, and Ph.D. E.E. 1964, Polytechnic Institute of Brooklyn; Bell Laboratories, 1958—. Mr. Brown has worked on the design of subscriber loop systems since 1964. Formerly supervisor of the *PICTUREPHONE*® Loop Repeater Group, he now supervises the Concentrator Development Group. Member IEEE, Eta Kappa Nu, Sigma Xi.

Douglas M. Dunn, B.S., 1964, M.S., 1965, Georgia Tech; Ph.D., 1970, University of Michigan; Bell Laboratories, 1970—. Mr. Dunn has done research in the areas of time series analysis and forecasting. His current research interests include the seasonal adjustment of economic time series, statistical computing, and exploratory data analysis. Member, American Statistical Association and Royal Statistical Society.

Herbert T. Freedman, B.A., 1972, University of Pennsylvania; M.S., 1974, Case Western Reserve University; Ph.D., 1976, University of Pennsylvania; Bell Laboratories, 1976—. Since joining Bell Laboratories, Mr. Freedman has been engaged in developing loop network cost models and methods systems. Member, IEEE, Operations Research Society of America, and the World Future Society.

John Freidenfelds, B.S.E.E., 1966, University of Connecticut; M.S.E.E./Operations Research, 1967, M.I.T.; Ph.D., Operations Research, 1971, Stanford; Bell Laboratories, 1966—. Upon joining Bell Laboratories, Mr. Freidenfelds took part in the One Year on Campus Program (M.I.T.) and later the Doctoral Support Plan (Stanford). He was assigned briefly to the antiballistic missile project and since 1971 has been in the Loop Transmission Division. He has worked on economic study methods with a concentration on capacity expansion problems. He is a member of Tau Beta Pi, Eta Kappa Nu, Sigma Xi, IEEE, and the Operations Research Society of America.

Allen E. Gibson, B.A., 1964, Denison University; M.S., 1966, Case Institute of Technology; Ph.D., 1969, Virginia Polytechnic Institute; Bell Laboratories, 1968—. From 1968–1972, Mr. Gibson worked on a variety of radar detection problems as part of the Safeguard project. Since 1972, Mr. Gibson has been a member of the Loop Network Engineering Department where he has been engaged in mathematical modeling of loop plant operations and has participated in the development of analysis techniques used in managing the loop plant. Mr. Gibson is currently involved in a revision of one of these analysis tools, the Economic Feeder Administration and Relief (EFAR) computer program.

G. T. Hawley, B.S. (E.E.), 1960, Northwestern University; M.S. (E.E.), 1965, New York University; Ph.D., 1970, Brooklyn Polytechnic University; Bell Laboratories, 1963—. Mr. Hawley has been involved in electrical protection, electromagnetic pulse, and loop range extension studies as well as loop electronics development planning. He is now supervising a group concerned with project tracking and analysis. Member, IEEE, Tau Beta Pi, Eta Kappa Nu, and Pi Mu Epsilon.

Robert W. Henn, B.M.E., 1966, City College of New York; M.S., 1969, New York University; Bell Laboratories, 1969—. Mr. Henn has done development work in the Loop Transmission Area since joining Bell Laboratories. He has been involved in the design of new splicing systems and the development of equipment and apparatus for loop electronic systems. As supervisor of the Facilities Exploratory Group, he is concerned with the future design of out-of-sight loop electronics facilities. Member, Tau Beta Pi, Pi Tau Sigma.

Warren L. G. Koontz, B.S.E.E., University of Maryland, 1966; M.S.E.E., Massachusetts Institute of Technology, 1967; Ph.D., Purdue University, 1971, Bell Laboratories, 1966—. In June 1966, Mr. Koontz joined the Electronic Switching Division of Bell Laboratories and participated in the Graduate Study Program. From 1968 to 1971 he was a Graduate Instructor at Purdue University. During the summers of 1969 and 1970, he worked at Bell Laboratories, Indianapolis, and in 1971 he returned to Whippany as a member of the Loop Transmission Division, where he is currently supervisor of the Loop Design Principles Group. Mr. Koontz is a member of Sigma Xi, Tau Beta Pi, Eta Kappa Nu, Omicron Delta Kappa, and Phi Kappa Phi.

James M. Landwehr, B.A. (mathematics-economics), 1966, Yale; Ph.D. (statistics), 1972, Chicago; University of Michigan, 1970-1973; Bell Laboratories, 1973—. Mr. Landwehr, a member of the Statistics and Data Analysis Research Department, has performed research on a variety of applied statistical problems. These include studies of costs and revenues; comparing methods for drafting printed wiring boards; the detection of signals in data from surface physics experiments; and methods for interpreting and assessing the results of cluster analyses. Member, American Statistical Association, Institute of Mathematical Statistics, Phi Beta Kappa, Sigma Xi.

Norwood G. Long, B.S.E.E., 1956, Duke University; Communications Development Training Program, Bell Laboratories, 1959; Bell Laboratories, 1956—. Mr. Long has been engaged in systems engineering studies on several communications systems, beginning with TASI and submarine cables, and followed by work on the electronic telephone set and high capacity mobile telephone communications. He has been involved in loop plant operations analysis and method systems development since 1970. He is currently Head of the Loop Transmission Design Department.

M. T. Manfred, B.S.E.E., 1967, U. of Minn.; M.S.E.E., 1972, U. of Minn.; U. S. Army, 1968-1971; Bell Laboratories, 1972-1977. While at Bell Laboratories, Mr. Manfred developed signalling schemes and designed circuitry for use in subscriber carrier channel units. He is currently employed by Honeywell Incorporated.

Brent L. Marsh, B.M.E., 1968, M.M.A.E., 1969, Ph.D., 1973, University of Delaware; Bell Laboratories, 1972—. Mr. Marsh is a member of the Loop Topology and Methods Department, where he has developed engineering doctrine and tools for the design and administration of the loop network.

D. H. Morgen B.S.E.E., 1969, Newark College of Engineering; M.S., 1971, Columbia University; E.Sc.D., 1974, Columbia University; Bell Laboratories, 1969—. From 1969 to 1971 Mr. Morgen was involved in radar systems and microwave radio research. Since 1971 he has been engaged in various aspects of loop electronics. He is currently supervisor of a group responsible for insuring proper performance of loop electronic systems. Member, IEEE, Eta Kappa Nu, Sigma Xi, Tau Beta Pi.

George A. Nelson, B.E.E., 1959, Rensselaer Polytechnic Institute; M.S., 1964, Harvard University; Bell Laboratories, 1963—. Mr. Nelson has had assignments associated with systems studies for Safeguard and Nike-X. He also has worked on systems problems of single-sideband long haul radio. Recently he completed work associated with engineering support for the SLC-40 system introduction to the operating telephone companies. Currently he is assigned to studies of maintenance requirements of future pair-gain systems. Member, Tau Beta Pi and Eta Kappa Nu.

T. N. Rao, B.Sc. (Physics), 1952, Madras University, India; B. Tech. (E.E.), 1957, Indian Institute of Technology, Kharagpur, India; M.S. (E.E.), 1962, University of California, Berkeley; Ph.D. (E.E.), 1967, Stanford University; Bell Laboratories, 1967—. Since joining Bell Laboratories, Mr. Rao has worked in the areas of tantalum integrated circuits and *PICTUREPHONE*® loop transmission. He is currently supervisor of a group involved in the development of analog carrier systems. Member, IEEE, AAAS, Sigma Xi.

Joseph G. Schatz, B.S.E.E., 1963, Manhattan College; M.S.E.E., New York University; Eng. Sc. D., 1971, Columbia University; Bell Laboratories, 1972-1978; AT&T, 1978—. While at Bell Laboratories, Mr. Schatz conducted long range planning studies to evaluate the effectiveness of new and existing loop electronic systems. Currently, he is a supervisor in AT&T Corporate Planning. Senior member, IEEE; member, Sigma Xi and Eta Kappa Nu.

Michael A. Schwartz, B.S.E.E., 1968, Rensselaer Polytechnic Institute; M.S.E.E., 1969, University of California, Berkeley; Bell Telephone Laboratories, 1968-1972; Chesapeake and Potomac Telephone Company of West Virginia, 1972-1974; Bell Telephone Laboratories 1974—. Mr. Schwartz has worked on the development of cable test sets and subscriber carrier systems. In 1972 he began an assignment to C&P Telephone of West Virginia where he worked on subscriber loop noise problems and the application of subscriber loop carrier in rural areas. Since his return to Bell Labs in 1974, Mr. Schwartz has worked on the planning and application of subscriber loop pair gain systems. Member IEEE, Tau Beta Pi.

C. H. Sharpless, B.S.E.E., 1970, Lehigh University; M.S.E.E., 1971, Stanford University; Bell Laboratories, 1970—. Mr. Sharpless designed integrable circuits for vestigial sideband transmission of *PICTUREPHONE*® signals in the loop plant. Later he designed circuits for the *SLC*™-40 and participated in its design evolution along with field support. Currently he is helping define the interface between future pair-gain systems and the No. 5 ESS. Member, Eta Kappa Nu, Tau Beta Pi.

Kenneth E. Stiefel, B.S.(E.E.), 1952, University of Colorado; M.S.E.E., 1956, California Institute of Technology; Bell Laboratories, 1952—. At Bell Laboratories, Mr. Stiefel worked on missile guidance systems for the Titan, Sprint, and Spartan missiles until 1973. He is now involved in loop electronics and is supervisor of the Voice Frequency Electronics Group. Senior member, IEEE.

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David H. Williamson, B.S. (M.E.), 1965, University of Kentucky; M.S. (M.E.), 1967, Purdue University; Bell Laboratories, 1966—. Mr. Williamson has worked on physical design and development of power conditioning systems, and more recently, the design and development of loop electronic systems. He is presently supervisor of the Facilities Planning and Exploratory Design Group. Member, ASME, Pi Tau Sigma, Tau Beta Pi.